EXAMPLE 37

ICR-CDI mice (Male, five weeks old, Body weight: 20 g) were abstained from food for 18 hours, and then used as test subjects.

The phenylalanine derivative of the present invention was suspended in 0.5% CMC-0.14M sodium chloride buffer solution (pH 7.4). The solution thus obtained was administered orally in fixed volume amounts to the test subjects. After a predetermined time, the percentage decrease of the blood glucose against the control group was determined. The results are shown in the following Table.

Example No.	Amounts used of sample mg/kg body weight	Decrease in blood glucose after 60 minutes (%)
21	25	26
22	100	43
23	"	35
24	"	30
25	"	32
26	"	0
27	"	0
28	6.25	24
29	"	31
30	"	30
31	1.5	30
32	6.25	37
33	100	23
34	"	14
35	25	24
36	100	27

It is clear from the foregoing that the D-phenylalanine derivatives as described above can be used as an antidiabetic drug for oral administration as well as the more usual parenteral administration.

We claim:

1. A D-phenylalanine derivative of the formula

$$R^4—CO—NR^3—CH(COOR^1)—CH_2—C_6H_5$$

or a salt thereof or a precursor which can be converted into said D-phenylalanine derivative in vivo, wherein:

R^1 is hydrogen or C_{1-5} alkyl,

R^3 is hydrogen or C_{1-5} alkyl; and

R^4 is cyclohexane substituted at the 4- or 5-position by methyl, ethyl, ispropyl, tert-butyl, ethene, or isopropene or cyclohexene substituted at the 4- or 5-position by methyl, ethyl, isopropyl, tert-butyl, ethene, or isopropene.

2. The D-phenylalanine derivative of claim 1, wherein R^4 is said substituted cyclohexane.

3. The D-phenylalanine derivative of claim 1, wherein R^4 is said substituted cyclohexane.

4. The D-phenylalanine derivative of claim 1, wherein the said derivative is N-(4-isopropylcyclohexylcarbonyl)-D-phenylalanine.

5. The D-phenylalanine derivative of claim 1, wherein the said derivative is N-(4-isopropylcyclohexylcarbonyl)-D-phenylalanine: N-[(S)-perilloyl]-D-phenylalanine; N-(4-methylcyclohexylcarbonyl)-D-phenylalanine; N-(4-ethylcyclohexylcarbonyl)-D-phenylalanine; or N-(4-t-butylcyclohexylcarbonyl)-D-phenylalanine.

6. The D-phenylalanine derivataive of claim 1, wherein the said derivative is N-[(s)-perilloyl]-D-phenylalanine; N-(trans-4-methylcyclohexylcarbonyl)-D-phenylalanine; N-(trans-4-ethylcyclohexylcarbonyl)-D-phenylalanine; N-(trans-4-isopropylcyclohexylcarbonyl)-D-phenylalanine; or N-(trans-4-t-butylcyclohexylcarbonyl)-D-phenylalanine.

7. The D-phenylalanine derivative of claim 1, wherein R^1 is hydrogen and R^3 is hydrogen.

8. The D-phenylalanine derivative of claim 1, wherein R^4 is perilloyl.

9. The D-phenylalanine derivative of claim 1, wherein said substituted cyclohexane is substituted at the 4-position.

10. The D-phenylalanine derivative of claim 1, wherein said substituted cyclohexane is substituted at the 5-position.

11. The D-phenylalanine derivative of claim 1, wherein said substituted cyclohexene is substituted at the 4-position.

12. The D-phenylalanine derivative of claim 1, wherein said substituted cyclohexene is substituted at the 5-positon.

13. The D-phenylalanine derivative of claim 1, wherein said substituted cyclohexane or said substituted cyclohexene is substituted with methyl, ethyl, isopropyl or tert-butyl.

14. The D-phenylalanine derivative of claim 1, wherein said substituted cyclohexane or said substituted cyclohexene is substituted by ethene, or isopropene.

15. A pharmaceutical composition, comprising a D-phenylalanine derivative of claim 1 and a pharmaceutical excipient.

16. The compound N-(trans-4-isopropylcyclohexylcarbonyl)-D-phenylalanine.

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